



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,225	10/30/2001	John B. Paine III	PM 1906 (4981*355)	5034

7590 08/04/2003

LAW OFFICES  
CONNOLLY BOVE LODGE & HUTZ LLP  
1220 MARKET STREET  
P.O. BOX 2207  
WILMINGTON, DE 19899

EXAMINER	
WALLS, DIONNE A	
ART UNIT	PAPER NUMBER
1731	

DATE MAILED: 08/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)
	10/003,225	PAIN, JOHN B.
	Examiner	Art Unit
	Dionne A. Walls	1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM  
 THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 3-5 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1.2 and 6-15 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved by the Examiner.  
 If approved, corrected drawings are required in reply to this Office action.
- 12) The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All
  - b) Some \*
  - c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
  - a) The translation of the foreign language provisional application has been received.
- 15) Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                   | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)          | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____. | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Allowable Subject Matter***

The indicated allowability of the subject matter of claim 2 is withdrawn in view of the newly discovered references. Rejections based on the newly cited reference(s) follow.

### ***Election/Restrictions***

1. Applicant's election with traverse of the Written Restriction in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the features recited in all of the claims 1-10 are similar and overlapping. This is not found persuasive because, as stated in the Restriction, the two inventions are distinct because the process can be used to make materially different products, such as gas masks which contain activated carbon. Further, the inventions are separately classed, and require totally different searches.

The requirement is still deemed proper and is therefore made FINAL.

### ***Priority***

An application in which the benefits of an earlier application (i.e. the Provisional Application 60/244,396 filed on October 31<sup>st</sup>, 2000) are desired must contain a specific reference to the prior application(s) in the first sentence of the specification or in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)).

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1731

3. Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicant has amended the claims to include the recitation "wherein the at least one heavy metal is incorporated within the catalytically active carbon". However, it is not clear how this limitation further defines the claims. Specifically, it is not clear how Applicant intends for the "incorporated within" language to differ from the "impregnated" recitation when, by the very definition of the word "impregnated", this term seems to include the concept of "incorporated within". Cited for Applicant's interest, is the Merriam-Webster's definition of "impregnate" which is "to cause to be filled" or "to permeate thoroughly" (see attachment). The examiner believes that this word would also encompass that which is expressed by the phrase "incorporated within", i.e. the terms, in this context, appear to be synonymous. Further, throughout the instant specification, Applicant discloses that "active carbon impregnated with heavy metal is used as a filter element for cigarettes" (page 3). Also, Applicant's specification discloses "M is metal ion incorporated within the graphitic sheets of the activated carbon" (page 6). Without any discussion in the specification of any distinction between these terms, it is assumed that the terms "impregnated" and "incorporated within" are interchangeable. However, if Applicant intends that the two phrases express different meanings, then Applicant is requested to provide sufficient explanation as to where, in the instant specification, the distinction of these two concepts is disclosed. For now, the Examiner will examine the newly amended claims based on this presumption.

It is noted that Applicant intends for "impregnate", as recited in the claims, to differ from the situation wherein the metal is merely deposited on the surface of the carbon; however, absent a certified declaration from Applicant with evidence proving that the cited references could not contain the metal other than on the surface, the Examiner presumes that a reference teaching of "impregnation" will infer that at least some amount of the metal will permeate below the surface (i.e. into the many pores) of the activated carbon. Examiner requests clarification is requested.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1 and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berg et al (US. Pat. No. 3,890,245) in view of Litzinger (US. Pat. No. 4,266,561).

Berg discloses that a well known procedure for increasing the sorption capacity of active carbon is to impregnate the carbon with heavy metals, like copper, chromium, zinc, cobalt, and manganese (see col 1, lines 13-17). Based on the dictionary definition of the word "impregnated", the Examiner believes that this term also encompasses the phrase "incorporated within", resulting in active carbon being both "impregnated" with a heavy metal, and having a heavy metal "incorporated" therein. Berg et al may not disclose that its known to use active carbon impregnated with a heavy metal in the filter of a smoking article; however, it does state that it is known to use such carbon in filters,

such filters being useful in the removal of toxic gases, such as hydrogen cyanide, by the phenomena known as "chemisorption" (see col. 1, line 13 – col. 2, line 4). Litzinger teaches that the phenomena of "chemisorption" in the tobacco art is well-known, and that the use of "chemisorptive" compositions in the filtering of tobacco smoke is effective in removing undesirable chemicals, such as hydrogen cyanide (corresponding to the claimed "selected gas phase components"), from said smoke (see col. 1, line 7 – col. 2, line 2). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate the metal-impregnated activated carbon, disclosed as being well-known in Berg et al, into a filter for a smoking article, which is known from the Litzinger reference, since cigarette filters using chemisorptive compositions to filter tobacco smoke is well-known in the art.

6. Claims 1, and 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keith et al (US. Pat. No. 3,355,317).

Keith et al discloses cigarette filter, for use with a smoking article, having incorporated therein activated carbon material impregnated with heavy metals (see cols. 1-2). Based on the dictionary definition of the word "impregnated", the Examiner believes that this term also encompasses the phrase "incorporated within", resulting in active carbon being both "impregnated" with a heavy metal, and having a heavy metal "incorporated" therein. Also, since the carbon material, used as source material for the activation of the carbon, can be subjected to 500 degree C heat during the impregnation process (which corresponds to the temperature of the activation/impregnating process

disclosed in the instant specification), it follows that the carbon has metal "incorporated" therein.

7. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Walker et al (US. Pat. No. 6,455,159).

Walker discloses a carbon/carbon composite which is impregnated with a penetrant solution containing a heavy metal, the impregnation procedure including a heat treatment of 500 – 900 degrees C. (see col 3, lines 54-64). Based on the dictionary definition of the word "impregnated", the Examiner believes that this term also encompasses the phrase "incorporated within", resulting in active carbon being both "impregnated" with a heavy metal, and having a heavy metal "incorporated" therein. Also, since the carbon material, used as source material for the activation of the carbon, can be subjected to 500 – 900 degree C heat during the impregnation process (which corresponds to the temperature of the activation/impregnating process disclosed in the instant specification), it follows that the carbon has metal "incorporated" therein.

8. Claims 1-2, and 6-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Reynolds et al (US. Pat. No. 3,724,469).

Reynolds discloses all that is recited in the claims (Note: N-Co ligation is disclosed), except it may not specifically recite that the heavy metal is impregnated/incorporated within the carbon. However, the fact that Reynolds et al discloses that the cobalt/iron chelates are adsorbed on the surface of the activated carbon, and since activated carbon contains pores, it follows that a certain amount of

Art Unit: 1731

the heavy metal chelate would penetrate and, hence, "impregnate" or be "incorporated within" the activated carbon itself.

9. Claims 8-10 and 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Art in view of Rideal et al ("Low Temperature Oxidation").

Applicant has admitted, on page 1 of the instant specification, that coal has an intrinsic nitrogen and heavy metal, i.e. Fe, content. It follows that this language indicates that said metal-nitrogen content is impregnated within the charcoal – which would also mean that said metal-nitrogen content is "incorporated" therein – since the metal-nitrogen is actually "in" the final charcoal product, as stated by Applicant.

Regarding claims 10, 13 and 15, while Applicant may not admit that a nitrogen ligation of the metal occurs (which would obviously result in the heat treatment of carbon in the presence of the heavy metal), Rideal et al discloses that it is known that catalytically active areas of charcoal consisted of iron-carbon-nitrogen complexes (see page 1813). Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to provide the carbon for use as a catalyst in order to take advantage of the oxidation potential of the carbon which is particularly afforded by the iron-carbon-nitrogen ligation.

#### *Response to Arguments*

10. Applicant's arguments filed on May 8<sup>th</sup>, 2003 have been fully considered but they are not persuasive.

- Examiner believes that Applicant's arguments have been identified, and adequately addressed in the above rejections.

***Conclusion***

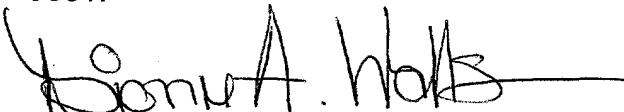
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Golden et al (US. Pat. No. 5,540,759)
- Hardison et al (US. Pat. No. 5,126,297).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dionne A. Walls whose telephone number is (703) 305-0933. The examiner can normally be reached on Mon-Fri, 7AM - 4:30PM (Every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (703) 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

  
Dionne A. Walls  
August 3, 2003